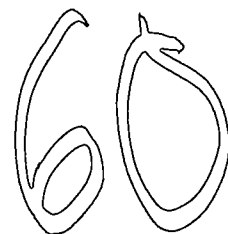


INTERIM CLOSE OUT REPORT FOR LTRA SUPERFUND SITE
Old Mill Superfund Site
Rock Creek, Ohio



I SUMMARY OF SITE CONDITIONS

Background

The Old Mill site is in the Village of Rock Creek, Ashtabula County, Ohio. The site consists of two parcels of land, the Henfield property and the Kraus property. The Henfield property is approximately 3 acres in size. Five dilapidated wooden buildings and four concrete silos were located on this property. Surface water flow from the property drains to the southwest corner and then to a ditch which discharges to the Rock Creek. The Kraus property is approximately 10 acres in size. This area was partially covered with piles of railroad ballast. Surface water flow from the Kraus property drains toward the northwest to a ditch which discharges to Badger Run and to the Grand River. Land use in the vicinity of the site is represented by a mixture of residential, agricultural, and commercial/industrial developments. The site is in a rural village setting with the closest residences approximately 75 feet from the property boundary.

Approximately 1,200 drums of toxic waste, including solvents, oils, resins, and PCBs, were stored on the Henfield and the Kraus properties. A significant quantity of the drummed waste was flammable, and many of the drums were in poor condition. The site was proposed for inclusion on the original National Priorities List (NPL) on December 30, 1982. This list was made final on September 8, 1983.

Remedial Planning Activities

The site first came to the attention of the United States Environmental Protection Agency (U S EPA) and the Ohio Environmental Protection Agency (OEPA) in 1979. Three separate Superfund emergency removal activities took place at Old Mill. Drum removal began in November 1981 and was completed by October 1982. Some of the Potentially Responsible Parties (PRPs) participated in removal activities by removing 580 of the drums. During the second EPA removal action in November 1982, approximately 2 inches (80 cubic yards) of soil from the drum storage areas on the Henfield property was removed. Finally, a six foot cyclone fence was installed around a portion of the Henfield property in April 1984 under the authority of Section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), in order to minimize the potential for direct contact with the remaining soil contaminants. (This fence is no longer in place, since the contaminated soil has been removed. Only the ground water treatment plant is currently fenced.)



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A Remedial Investigation (RI) was conducted at the site from August 1983 to December 1984. An addendum to the RI was completed on May 31, 1985. The activities performed during the RI included installation of 14 ground water monitoring wells (plus 7 more during the additional RI field work), and collection, analysis, and evaluation of private well water samples, soil and sediment samples, surface water and ground water samples, railroad bed samples, and railroad ballast samples. In addition, geophysical studies were conducted, and topographic maps were prepared for both the Henfield and Kraus properties.

The following is a summary of the results that were obtained from the studies, grouped by affected media. In general, the sampling activities indicated the presence of many contaminants to varying degrees in the soil, surface water, sediment, and ground water of both properties.

The Henfield property soil was found to have elevated levels of organic and inorganic contamination. Soil sampling activities conducted on the Henfield property showed surface soil on the west side of the property in the vicinity of the row of silos to contain the highest levels of trace metal (e.g., lead at 8,370 mg/kg) and organic (e.g., phenanthrene at 5,100 mg/kg) contamination observed on or around the Old Mill site. Organic contaminants were detected at elevated concentrations (e.g., phthalates at <1 to 22 mg/kg) down to 6 feet below ground surface.

The Kraus property soil had lower levels of contamination than did the Henfield property soil. Results from sampling indicated contamination by trace metals (e.g., cadmium at 323 mg/kg) and organics (e.g., naphthalene at 32.7 mg/kg).

Ground water at the Henfield property was found to be contaminated with volatile organic compounds (VOCs), mainly trichloroethene (up to 6,100 ug/l), with lower concentrations of tetrachloroethene, trans-dichloroethene, 1,1-dichloroethene, vinyl chloride, and 1,1,1-trichloroethane. Ground water at the Kraus property contained VOCs, mainly ethylbenzene and xylene. The VOC plume appeared to be confined to a small on-site area on the east side of the Kraus property. [During Remedial Action (RA), however, additional contamination was discovered on the Kraus property which had to be addressed. This is discussed further in the Remedial Construction Activities section of this report.]

At least two residences within 1/4 mile of the site used ground water wells for their drinking water source. These residences were hooked up to the public water supply.

Surface water and sediment studies found that the drainageways on

both the Henfield and Kraus properties had only limited organic contamination

A complete summary of the results of site analysis can be found in the final RI report and the addendum to the RI

On May 21, 1985, the Feasibility Study (FS) was released for a public comment period which was scheduled to end on June 19, 1985, the public comment period had to be extended through June 24, 1985, due to the large amount of community interest. The FS included an exposure assessment, a discussion of applicable remedial technologies, and an in-depth summary and analysis of remedial alternatives. The alternatives brought forth for final comparison included

- Off-site disposal of all contaminated soil and contaminated ground water at a Resource Conservation and Recovery Act (RCRA)-licensed facility
- Off-site disposal of 95% of the contaminant mass in the soil and on-site granular activated carbon (GAC) treatment of contaminated ground water
- On-site landfilling of all contaminated soil and on-site GAC treatment of contaminated ground water
- On-site landfilling of 95% of the contaminant mass in the soil and on-site GAC treatment of contaminated ground water
- A multimedia cap for contaminated soil and on-site GAC treatment of contaminated ground water
- A clay cap for contaminated soil and on-site GAC treatment of contaminated ground water
- Fence the site and monitor the ground water
- No action

Many comments were received on the report. A number of commentators emphasized that they wanted nothing less than 100% total cleanup of the site. They expressed dissatisfaction with the chosen alternative. A public meeting was held on the FS and a transcript was prepared. All comments were addressed by the EPA in a responsiveness summary released in August 1985.

On August 7, 1985, consistent with the Initial Remedy Delegation Report of March 8, 1985, the Regional Administrator approved a Record of Decision (ROD). The remedy selected for the Old Mill site as identified in the ROD consisted of

- Removal and off-site disposal of 95% of the contaminants in the soil
- Ground water extraction and treatment to a target ground water contaminant concentration of 10^5 carcinogenic risk level. This was to be done using GAC, and was to take approximately 30 years. (It was later decided to add an air stripper to the treatment system.)
- Aquifer use restrictions by the State of Ohio for as long as concentrations in the plume are above 10^6 carcinogenic risk

levels

--Hookup to the public water supply for those residences potentially affected by the contaminated ground water

After the ROD was signed, the project was delayed for several months due to lack of funding, during the time period when CERCLA was being reauthorized

After reauthorization occurred, EPA contracted with Camp, Dresser, and McKee (CDM) to manage the Remedial Design (RD) for the Old Mill site cleanup. Woodward-Clyde acted as CDM's subcontractor, and prepared the design documents. RD oversight was performed by the U S Army Corps of Engineers (USACE). The RD was completed on September 16, 1987.

Between May 12, 1987 and September 28, 1987, when the final version was signed, EPA and the State of Ohio negotiated a State Superfund Contract (SSC). The SSC has been amended three times, on September 15, 1989, February 21, 1990, and November 21, 1990. The SSC provided that the State pay 10% of the RA and extended RA costs. [Extended RA, or Long Term Response Action (LTRA), refers to operation of the ground water extraction and treatment system for the first 10 years, in this case from August 1989 through August 1999.]

The EPA and the State of Ohio acknowledge that the cost sharing of O&M activities are the subject of an ongoing dispute. Consequently, there has been disagreement between EPA and the State of Ohio as to funding of the O&M cost of the system for the 20 years following the LTRA, (or until ground water cleanup goals are met).

Specifically, the EPA maintains that the State of Ohio is responsible for 100% of the costs of O&M, while the State maintains that it is responsible for paying 10% of the O&M costs.

The EPA acknowledges that the State of Ohio may assert a challenge in any court or administrative board of competent jurisdiction concerning any EPA policy, rule, or statute and application thereof, that requires the State to bear more than 10% of O&M costs.

The EPA agrees that should the State of Ohio prevail in its challenge referenced above, and EPA has exhausted any rights of appeal it has by law, all contracts entered into between EPA and the State of Ohio that require the State to fund 100% of O&M costs shall be modified to reflect the outcome of that challenge.

Between October 23, 1987 and February 9, 1988, an open bid period on the RA construction contract was held by the USACE. The contract award delay was caused by the need to amend the solicitation several times in response to comments by prospective

bidders, bid protests, and by access problems. A contract was awarded on March 25, 1988 to Aptus Environmental Services for \$4,486,966 11

Aptus identified the off-site disposal facilities to be used. It was determined that Envirosafe (in Oregon, Ohio), which was used for disposal of hazardous materials, was a secure hazardous waste landfill in compliance with the Superfund off-site policy. Doherty Landfill (in Geneva, Ohio), a sanitary landfill, was selected for disposal of non-hazardous site debris.

Remedial Construction Activities

The Notice to Proceed was issued to the contractor on April 28, 1988. After thorough review, the final work plan was approved. On-site mobilization activities (specifically, installation of headquarters, safety training for subcontractors, building of decontamination pads, upgrading of haul roads, etc.) began during the week of May 9, 1988. Two availability sessions were held at the site on June 8 and June 9, 1988 to discuss construction details with any interested parties.

On-site excavation of contaminated soil began on the Kraus property, following site preparation activities on the Henfield property, excavation began there as well. Verification sampling was performed following excavation to ensure that Allowable Residual Contaminant (ARC) levels were achieved. If they were not, additional soil was removed. On portions of the Henfield property, it was decided to excavate to the clay layer plus three additional inches, to a total excavation depth of approximately 2.5 feet. In some areas, contamination persisted well into the barrier clay, and in other areas, well below the water table. An unusually wet fall made excavation very difficult, and it was decided to backfill and allow the water treatment system to take care of the final cleanup. By the end of the project, approximately 12,100 cubic yards of contaminated soil had been removed. This was much more than the amount originally estimated in the ROD (4,300 cubic yards).

Five dilapidated wooden buildings and four concrete silos located on the Henfield property were demolished and the debris shipped off-site. The portions of the debris that were found to be hazardous were shipped to the Envirosafe facility, while those that were non-hazardous were sent to the Doherty landfill. Care was taken to keep the debris materials from contacting the contaminated soil, to prevent those parts that were not contaminated from becoming contaminated.

Construction of the ground water extraction and treatment system began after most of the soil removal and building demolition was completed. The extraction system consists of trenches located on each property, which collect contaminated ground water from the

shallow aquifer, as well as one extraction well on the Henfield property and two extraction wells on the Kraus property. The extraction wells were installed to a depth of 30 feet to capture contaminated ground water from the deep aquifer. The system had to be constructed differently than originally planned (i.e., extraction trenches were used in place of shallow extraction wells) as a result of design studies which showed that the shallow extraction wells could not effectively capture the contaminated ground water from the shallow aquifer. The original trench system also had to be extended. This was because during the removal of contaminated soil from the Kraus property, additional contaminated ground water was discovered. Contaminants included vinyl chloride at 340 ppb, xylenes at 8,900 ppb, tetrachloroethylene at 230 ppb, and trichloroethylene at 3,400 ppb.

The RA contractor was also responsible for building a treatment facility to treat the ground water which was extracted. A treatment plant capable of treating 10 gallons per minute (gpm) of contaminated ground water was built, but the plant's normal operating rate is 5 gpm. The treatment plant includes a holding tank which collects ground water pumped from the extraction system. The water from the holding tank is pumped at a rate of 15 gpm through cartridge filters to an air stripper for removal of volatile organic compounds. A portion of the effluent from the air stripper (10 gpm) is recycled back to the holding tank and the remainder is pumped through cartridge filters to two-stage activated carbon columns. The final effluent is discharged by gravity to an underground storm water drain and ultimately flows to Rock Creek.

Compliance monitoring wells were also installed during the RA. Twenty-four wells were installed in all. Eight shallow and eight deep wells were installed on the Kraus property. Four shallow and four deep wells were placed on the Henfield property. The wells from the Remedial Investigation were abandoned.

Following the removal of contaminated soil and debris, the site was backfilled with uncontaminated select borrow, regraded to ensure proper drainage, and seeded to prevent soil erosion.

A Final Inspection was held on August 18, 1989 by EPA, OEPA, USACE, and Aptus. A punch list was developed, and final modifications were requested. All work was essentially completed on March 9, 1990. The USACE accepted the project as final from Aptus on June 29, 1990. EPA (on July 17, 1990) and OEPA independently inspected the site to determine that the modifications had indeed been made and that all items on the punch list had been addressed. The remedial action was determined to have been successfully executed.

It was later determined that a Remedial Action Report (RAR) was

needed from the USACE before the IAG could be closed out. The USACE submitted a RAR signifying successful completion of construction activities. The report documents and discusses the 15 contract modifications which were issued throughout the project. Including the modifications, the total remedial action contract cost was \$5,074,831.65. The RAR was approved on April 24, 1991.

Community Relations Activities

This site was the object of considerable public interest. The Region's community relations staff and the Remedial Project Manager worked diligently to ensure that the local residents were kept well informed as to the activities at the site. Community relations activities included routine publication of progress fact sheets and updates, responding to the large numbers of verbal and written inquiries that were generated by local citizens and other interested parties, and conducting several public meetings and availability sessions.

The first public meeting was held in October 1983 at the start of the RI/FS to explain the scope of the RI. The second meeting, held on October 16, 1984, discussed the results of the draft RI Report. A third meeting was held on January 14, 1985 to explain the results of the RI and the exposure assessment. The fourth meeting was held on June 11, 1985 to present the findings of the FS. A public meeting was held on October 15, 1987 to discuss the design and construction phase of the project. As mentioned previously, availability sessions were held at the site on June 8 and 9 of 1988 when construction activities began.

II DEMONSTRATION OF QA/QC FROM CLEANUP ACTIVITIES

The remedial action contract was carefully reviewed by EPA and USACE for compliance with all EPA and USACE quality assurance/quality control (QA/QC) procedures and protocol. Accordingly, EPA-approved standard analytical methods were used wherever possible. Where not practical, other properly validated and standardized methods such as ASTM methods were used.

All procedures and protocol followed for soil, sediment, and air sample analysis during the remedial action are documented in the Aptus Quality Control Plan, approved on September 6, 1988. The sampling plan for the collection and testing of samples from the ground water treatment plant is also described in this document.

The QA/QC program utilized throughout the remedial action was sufficiently rigorous and was adequately complied with to enable the determination by EPA and USACE that all analytical results reported were accurate to the degree needed to assure satisfactory execution of the remedial action consistent with the

ROD

III MONITORING RESULTS

The contaminated soil and sediment removals from both the Henfield and Kraus properties were based on achieving the Allowable Residual Contaminant (ARC) levels determined in design. To verify that soil and sediment excavation and removal had achieved these limits, 63 soil and 5 sediment verification samples were taken on the Henfield property, and 40 soil and 14 sediment verification samples were taken on the Kraus property. In addition to testing soil and sediments for the ARC parameters, 10 samples (5 soil and 1 sediment from the Henfield property, and 3 soil and 1 sediment from the Kraus property) were tested for Extraction Procedure (EP) Toxicity parameters.

Ground water is currently sampled at five sampling points for the contaminants of concern, these include influent and effluent samples, and samples at various points in the treatment plant. Samples have been taken monthly for the first 2½ years. Samples will be taken quarterly in the future, from specified sampling points. Ground water from the compliance monitoring wells will also be sampled. Ground water extraction and treatment will continue until ground water meets cleanup levels (i.e., carcinogenic risk level of 10^{-5} or less). There is a possibility that Alternative Concentration Levels (ACLs) will need to be set, if it is determined that treatment to the goals set in the ROD is not achievable. In that case, treatment will continue until the ACLs are met.

This Interim Close Out Report will be amended when ground water cleanup levels are achieved. The Interim Close Out Report and the amendment together will constitute the final Close Out Report for the Old Mill site.

IV SUMMARY OF OPERATION AND MAINTENANCE

As stated earlier, EPA is operating the ground water extraction and treatment system for a total of ten years, while the State is responsible for 10% of the LTRA costs. As discussed on page four, there is an ongoing dispute between EPA and the State of Ohio as to the cost sharing of O&M activities for the next 20 years, (or until cleanup levels or ACLs are met).

There is an Operations and Maintenance Manual in place for this site. Activities that must be conducted at the site in addition to operation of the system include sampling of the treatment plant influent and effluent and the monitoring wells, routine mowing of the grass, maintenance of the plant and the fence.

around it, and plowing snow from the treatment plant driveway

This section will be completed in the amendment to this Interim Close Out Report

V SUMMARY OF FIVE-YEAR REVIEW STATUS

Consistent with the requirements of OSWER Directive 9355 7-02 ("Structure and Components of Five-Year Reviews", May 1991), a five-year review(s) is appropriate at the Old Mill site. The Directive provides that EPA will conduct five-year reviews as a matter of policy (Policy Reviews) of sites where no hazardous substances will remain above levels that allow unlimited use and unrestricted exposure after completion of the remedial action, but the cleanup levels specified in the ROD will require five or more years to attain (e.g., LTRA sites).

This site will be subject to a five-year review in 1993 (the RA contract was awarded on March 25, 1988). Based on the five-year review, EPA, in consultation with the State of Ohio, will determine whether human health and the environment are being protected by the remedial action being implemented. EPA, in consultation with the State of Ohio, will develop an acceptable and detailed work plan consistent with OSWER Directive 9355 7-02 for the five-year reviews.

This Interim Close Out Report will be amended when at least one five-year review has been conducted.

VI PROTECTIVENESS

Confirmatory sampling has verified that 95% of the contaminated soil has been removed. The ROD cleanup objective for removal of contaminated soil has thus been achieved. Backfilling and seeding of the site provide further assurance that the site does not pose a threat to human health and the environment via the direct contact pathway.

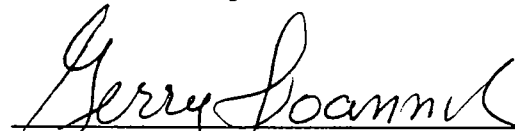
The ground water will be treated and sampled for approximately 30 years, or until cleanup levels or ACLs are met. Aquifer use restrictions will remain in place for approximately 100 more years after that, or until 10^{-6} carcinogenic risk levels in the ground water are met. The site does not currently pose a direct threat to human health, as no one is drinking the contaminated ground water. However, the remedy cannot be said to be fully effective until the ground water cleanup is completed. This section will therefore be updated in the amendment to this Interim Close Out Report.

Approved by



for
Valdis V. Adamkus
Regional Administrator
U S EPA Region V

9/30/91
Date



Donald Schregardus
Director
Ohio EPA

9-30-91
Date